OCCRL

office of community college research and leadership

Priorities for Allocating Corporate Resources to Improve Education

by

Lisa K. Hood
Melanie B. Rubin

June, 2004

OCCRL, University of Illinois at Urbana-Champaign
51 Gerty Drive, 129 CRC
Champaign, IL 61820
217-244-9390
occrl@uiuc.edu
http//occrl.ed.uiuc.edu

Priorities for Allocating Corporate Resources to Improve Education

by

Lisa K. Hood
Melanie B. Rubin

June, 2004

OCCRL
 University of Illinois
  at Urbana-Champaign
51 Gerty Drive, 129 CRC
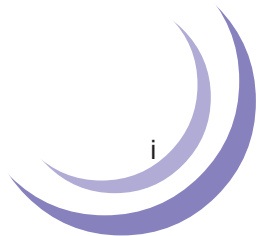Champaign, IL 61820
217-244-9390
occrl@uiuc.edu
http//occrl.ed.uiuc.edu

Acknowledgements

Executive Summary

Since the mid-1980's, business-education partnerships have strengthened and focused more on complex, system-level concerns. Spurred on by *A Nation At Risk* (National Commission on Excellence in Education, 1983) and subsequent educational reform agendas, businesses have worked with schools in a variety of ways to support change and improvement. Reviewing partnerships focused on reform, Rigden (1994) reports that businesses often focus on four areas: a) enhanced student learning, b) extended teacher capacity, c) increased innovation in school systems, and d) more effective assessment tools. Despite the long history of business-education partnership activities, very little information exists about them. This study attempts to explore business priorities in terms of the time and resources that businesses devote to various types of business-education partnership activities. This study also describes the impact that business representatives hope their partnership activities will have on students, teachers, and educational systems.

In the mid-1990's, the National Employer Leadership Council (NELC) developed the Employer Participation Model that focuses on business involvement in business-education partnerships. Using this model as a foundation, we invited business representatives to participate in telephone interviews to discuss their partnerships with education. We asked the representatives to assess their activities with students, teachers, administrators, their priorities for allocating time and resources to partnerships, and their expectations for what the partnerships would achieve. A modified snowball sampling procedure was used to identify a pool of potential businesses as recommended by members of professional associations such as the National Tech Prep Network, the Association of Career and Technical Education, and others. Businesses were sampled from four career clusters: health sciences, finance, information technology, and manufacturing. After participating in the interview, business representatives were asked to recommend other businesses they believed would have information relevant to this study. Web and library literature searches yielded additional valuable information.

Results are organized according to the following categories: Working with Students, Working with Teachers, Working with Administrators, Changing Company Practices, and Partnerships in Action.

Working with Students

Essentially, we found that working directly with students was the highest priority for businesses in this study. Businesses want to work with students to inform them about opportunities to attend college and obtain employment. They want to spark student interest in their own industry and career field. Businesses believe working with students builds a talent pipeline. As a result of the partnerships, businesses hope students will connect what they're learning in the classroom to the workplace, be more motivated to pursue higher education, and become highly qualified members of the workforce. Businesses report that mentoring, assessing student abilities and interests, and serving as guest speakers are common activities when working with students. While all are valuable, these activities tend to be less time and labor intensive than activities mentioned less often, such as tutoring, cooperative education, and apprenticeships.

Working with Teachers

Working with teachers was a priority for businesses as well, closely following working with students. Business representatives said that working with teachers is a high priority because teachers have the most impact on the education system and students. Also, teachers are the gatekeepers to both the curriculum and students. In addition, business representatives believe that partnership activities can be a resource and support system for teachers, providing professional development, motivation, and equipment. In recent years, businesses have increased the priority they give to working with teachers in activities such as curriculum development, integrating industry skills standards into the curriculum, and providing externships and sabbaticals for teachers in the workplace.

Working with Administrators

Many business partners are working with administrators and view these activities as important because they see administrators as the gatekeepers to working with students and teachers. Businesses recognize that they need administrator buy-in to gain entry to the school, and promote and support activities that engage students and teachers. In addition, businesses believe their work with administrators can lead to systemic change. For example, businesses have unique management knowledge and tools that can be valuable to helping administrators manage their schools.

Changing Company Practices

Not many business representatives rated changing their own company practices as a high priority in their partnerships. The most common activities mentioned in this category were contracting with local educational institutions to train employees; encouraging employees to get involved in the local educational system by serving on school boards and volunteering in schools; and collaborating with other businesses to form organizations that work toward improving education. Little attention was given to internal organizational or personnel changes as a part of business-education partnerships.
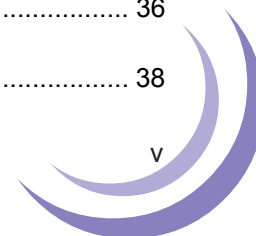
Partnerships in Action

The business representatives interviewed provided rich descriptions of partnerships that might serve as models for other business and education organizations to learn from and replicate. In the last section, we highlight a number of these partnerships.

Table of Contents

Introduction

Over the past two decades, the number of businesses involved in partnerships with education has risen dramatically. According to the National Center for Education Statistics (1989), 42,200 business-education partnerships existed in 1983-84. This number more than tripled to 140,000 by 1987-88, only four years later. By 1991, the National Association for Partnerships in Education estimated that there were 200,000 business-education partnerships in the United States (Solomon, 1991), and Grobe, Curnan and Melchior (1993) noted that almost a quarter of the nation's students, approximately 9 million, were involved.

In 1997, the U.S. Census Bureau administered the National Employer Survey (NES-II) to approximately 5,437 employers around the country (National Center for Postsecondary Improvement, 1997). Analysts found that approximately 26% of the respondents were involved in school-to-work partnerships, and that large firms are more likely to be involved than small firms. Approximately 60% of establishments with 1000 or more employees participate in school-to-work partnerships versus 24% of businesses with 20-49 employees.

Getting their start in the 1960's and 70's, most business-education partnerships were initiated in large metropolitan areas (Hopkins & Wendel, 1997). The most common type of partnership at that time was the adopt-a-school approach where a business adopts a single school to provide resources and engage in particular activities. Listed from top to bottom in terms of popularity, business contributions begun in the 1970's were most likely to involve adopt-a-school, volunteers in schools, speaker's bureaus, school foundations, homework hotlines, and mentoring. These one-to-one partnerships between businesses and schools were often a first step in establishing deeper relationships with schools (Lankard, 1995). During the 1980's, businesses heightened their commitment to education, and schools were increasingly receptive to their ideas. Business commitments grew to include more extensive involvement in core school functions including teaching and learning. Increasingly, public funds, particularly federal dollars, were appropriated to business-education initiatives that promoted educational reform.

Since the mid-1980's, business-education partnerships have strengthened and focused on more complex, system-level concerns. Spurred by *A Nation at Risk* (National Commission on Excellence in Education, 1983) and subsequent educational reform agendas, businesses have worked with schools in a variety of ways to support change and improvement. Reviewing partnerships focused on reform, Rigden (1994) reports that businesses often focus on four areas: a) enhanced student learning, b) extended teacher capacity, c) increased innovation in school systems, and d) more effective assessment tools. Because of the greater demands of these types of partnerships, a great deal of time and effort is involved in their creation and maintenance. Fortunately, when they occur, they tend to last longer—5-10 years or more—than partnership activities such as adopt-a-school. They also often include multiple partners that form cooperative agreements and new organizational structures (Lankard, 1995). Project coordinators are hired and dedicated to partnership work, sometimes through completely new organizations. Schools or school districts may be the focus of reform-oriented partnerships, or these initiatives may involve larger policy changes at the state and federal levels.

> **"It's powerful for business and community partners to support teachers, to tell them how wonderful they are, how essential they are. That connection is extremely important. Teachers have a powerful role in shaping our future society."**
>
> *Sandy Dochen, IBM*

In 1990, *Fortune* magazine surveyed its Fortune 500 companies to evaluate their involvement in business-education partnerships (Hopkins & Wendel, 1997). They found that more than three-quarters of the companies donated money, almost two-thirds donated equipment, over half encouraged their employees to run for local school boards, three-quarters offered part-time summer employment to students and one-quarter to teachers, almost one-quarter lobbied government for reform, slightly less than one-fifth actively supported tax increases on bond issues, and over one-tenth "loaned-out" executives to the schools.

What are the characteristics of businesses involved in partnerships? As suggested earlier, large firms are more highly involved in partnerships than small ones, often because they provide internships for students. Large companies have human resource or corporate relations departments that are able to manage these programs (Cappelli, Shapiro, & Shumanis, 1998). In addition, educators often approach large corporations because they are aware of them, and believe they have resources and a proclivity to participate in activities that enhance their image.

In their synthesis report for the Educational Partnerships Program, Grobe, Curnan, and Melchior (1993) suggested that business-education partnerships operate on six levels. The level of focus and complexity of programs ranges from simple to complex, extending in descending order from six, the least broad and complex, to one, the most broad and complex.

- Level Six: Partners in Special Services - short-term projects developed to handle a specific problem.

- Level Five: Partners in the Classroom - volunteers from the business community go into the classroom or students go to the workplace so both teachers and students can benefit from each other's expertise and contributions.

- Level Four: Partners in Teacher Training and Development - professional development opportunities for teachers may include businesses bringing teachers to the workplace as interns or providing workshops for teachers to upgrade and improve their skills.

- Level Three: Partners in Management - businesses work with school administrators to better manage schools using business management principles.

- Level Two: Partners in Systemic Educational Improvement - partners work toward system-wide changes in the education system including a total restructuring of the system (e.g., structuring the curricula in the form of career pathways).

- Level One: Partners in Policy - School and business partners work with public officials at the local, state, and national level to bring about changes in policy.

Many of the business-education partnerships started in recent years focused on educational change, and a substantial number were stimulated by the new economy, which has shifted toward global information exchanges and

"We're trying to develop these types of partnerships—not 'checkbook philanthropy.' We're trying to be active partners and not assuming that just writing a check fixes things."

Carl Nelson, State Farm

new technologies (Carnevale & Desrochers, 2002; Lynch, 2000). The new workforce requires critical-thinking and problem-solving skills as outlined in the Secretary's Commission on Achieving Necessary Skills (SCANS, 1991) and subsequent reports generated by educators and business leaders. Expectations have increased, asking all students to achieve at higher levels. The ever-evolving information age demands the ability to learn new skills and adapt to a changing environment. As a result, schools and colleges have had to offer new curricula, encourage higher standards of achievement, and provide opportunities for students to understand and interact with the larger world through state-of-the-art technologies and modern workplaces.

Thus far, we've alluded to primarily business-secondary education partnerships, but this is an incomplete picture. Increasingly community colleges and four-year colleges and universities form partnerships with businesses to accomplish a myriad of goals, including delivering credit and non-credit education and training programs, conducting research and development (R&D), and furthering various entrepreneurial ventures and service activities.

Though mostly lauded, criticisms of business-education partnerships are voiced by educators and others. Claims are made that businesses use partnerships with schools to enhance their image, seeking quick recognition rather than a long-term commitment. Further, many business-education partnerships are targeted to particular subjects (e.g. math and reading) or individual classrooms, limiting their potential to support the education of large numbers of students, including those most at risk of dropping out or failing. Critics also argue that business demands subvert the broader liberal arts mission of education in favor of narrow vocationalism, using educational institutions to train current or future employees. Finally, some critics claim that schools and colleges have affiliated too closely with the private sector, losing sight of the importance of the democratic ideals of education (Slaughter & Leslie, 1997).

After at least two decades of implementation, very little information exists about the impact of business-education partnerships on student outcomes. In a time when educational institutions of all types are required to demonstrate impact in accordance with the No Child Left Behind (NCLB) federal legislation, it is risky to engage in activities that do not readily show an impact on student learning (Cappelli, Shapiro & Shumanis, 1998). While this study does not assess the impact of business-education partnerships on student learning, it does attempt to explore business priorities in terms of the time and resources devoted to various types of partnership activities. This study also describes the impact that business representatives hope their partnership activities will have on students, educators, and educational systems.

In the mid-1990's, the National Employer Leadership Council (NELC) developed the Employer Participation Model that focuses on business involvement in business-education partnerships associated with state and local workforce

"Quality education is crucial for economic sustainability. It brings forth future leaders, future associates, and future customers."

Paula Fraher,
Bank of America

The Employer Participation Model

development systems. The Employer Participation Model looks at business-education partnerships from the employer's perspectives: employers working with students and teachers, employers strengthening company practice, and employers building a system (Kaufman, 1998; NELC, 1996). This model served as the framework upon which we structured this qualitative interview study.

The Employer Participation Model presents 43 activities that are grouped according to the following categories:

"If we want to redevelop a community, then we have to redevelop education."

Carl Nelson, State Farm

Employers ...

BUILDING A SYSTEM

STRENGTHENING COMPANY PRACTICE

Working with policymakers, stakeholders and other employers to create workforce development systems

What you can do...

Providing information and experiences to prepare students for challenging careers.

What you can do...

WORKING WITH STUDENTS AND TEACHERS

Partnering with teachers to improve student skills and academic performance.

What you can do...

Clarifying and strengthening company commitment in th education supply chain.

What you can do...

Employer Participation Model

- working with students and teachers.

- strengthening company practices to support workforce development systems.

- building a system.

In the first circle, ***working with students and teachers***, employers are focused on three areas: career awareness, career exploration, and career preparation. Activities employers may be implementing with schools include project-based learning, internship/externship opportunities for students and teachers, curriculum development, and identifying industry skill standards. Other activities are career days/fairs, job-shadowing, and workplace tours.

The second circle, ***strengthening company practices***, is exclusively concerned with changes companies make within their own organizations to sustain new partnerships with education. Practices within this circle involve educating students and teachers about the desired skills of new employees, taking into account students' academic achievement and workplace experiences; training employees to supervise students during work-based learning experiences; educating employees on industry skill standards and using them to frame corporate training; incorporating partnerships with career development and performance review; encouraging employees to serve on local school boards and volunteer in local schools; and taking leadership to address education reform.

Activities in the third circle, ***building a system***, include employers working at the local, state, regional, national, or international levels to promote workforce development systems across industries. These activities include promoting industry skills standards, benchmarking practices, building assessment and credentialing systems to evaluate and certify potential employee skills, and promoting incentives for businesses involved in partnership activities, including tax breaks or monetary awards.

In 1998, the NELC commissioned a report to study employer involvement in school-to-career programs in Colorado using the Employer Partnership Model (Taylor, Johnson, & Charner, 1998). Researchers at the Academy for Educational Development (AED) asked employers to describe their business-education partnerships, the breakthroughs and successful strategies they had employed, and their future needs. AED researchers concluded that the Colorado employers that were surveyed were engaged in activities highly aligned with the Employer Partnership Model, and they recommended that business-education partnerships organize around a common need. They cautioned that all stakeholders should be recruited and involved from the beginning because the initial phases of the partnership are crucial. Lastly, they encouraged employers to acknowledge organizational and cultural differences between the business and education sectors.

"We're not just doing something to someone, we're doing something 'with' someone. We're learning and creating and discovering something together."

Sandy Dochen, IBM

5

When examining challenges associated with partnerships, the AED researchers reported that employers had some difficulty in implementing activities within each category of the Employer Partnership Model. In addition, businesses needed more information to implement effective work-based learning experiences for students and to have their roles better defined by the educational sector. Employers also had a need for internal support from employees in their companies and externally from such groups as school boards and parents. Further, companies would benefit from support from professional organizations on the national level to ensure the growth of school-to-career initiatives at the national level.

In its publication, *Employer Focus*, the National Employer Leadership Council (2001) gathered data on business involvement in school-to-career partnerships from various research reports. Overall, the Council found business involvement grew in the 1990's. Between 1996 and 1998, the percentage of businesses in the United States involved in school-to-career partnerships grew from 25% to 37%. Between 1996 and 1999 the following positive changes were reported in business involvement:

- Participation in curriculum development rose from 19,000 to 26,600 businesses.

- The number of businesses providing training and internships for educational staff development increased from 16,000 to 27,800.

- Guest speaking in the classroom increased from 49,000 to 74,800 businesses.

These trends confirm that businesses are engaging in activities that the Employer Partnership Model recommends.

The Study

This study explores business involvement in business-education partnerships using the National Employer Leadership Council's Employer Participation Model. Using telephone interviews, we studied how business representatives characterize their partnerships with education in terms of the activities they engage in with students, teachers, and administrators; what their partnerships with schools and colleges look like; where they prioritize time and resources; the reasons they give for placing higher priority on some activities than others; and the outcomes they hope to achieve.

The study examines not only what business-education partnerships look like, but the interrelating mechanisms that guide them. Much of the existing literature on this topic describes why businesses are involved in business-education partnerships generally, but not where businesses prioritize their time and resources, whether with students, teachers, or administrators. Nor does the literature make clear whether businesses are changing within their own companies in ways consistent with the recommendations they are making to change policy and practice in educational institutions.
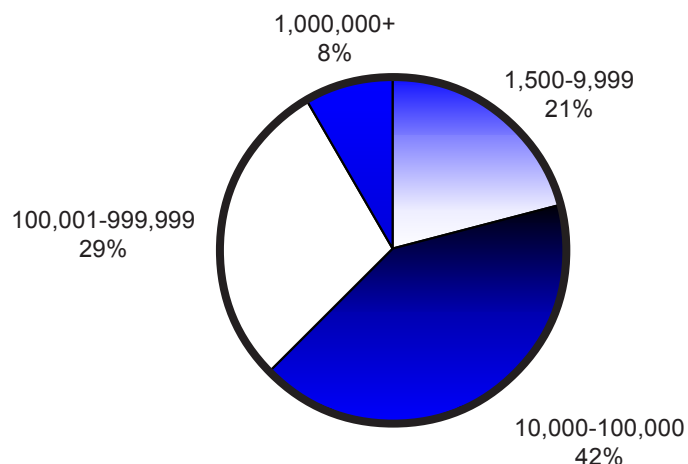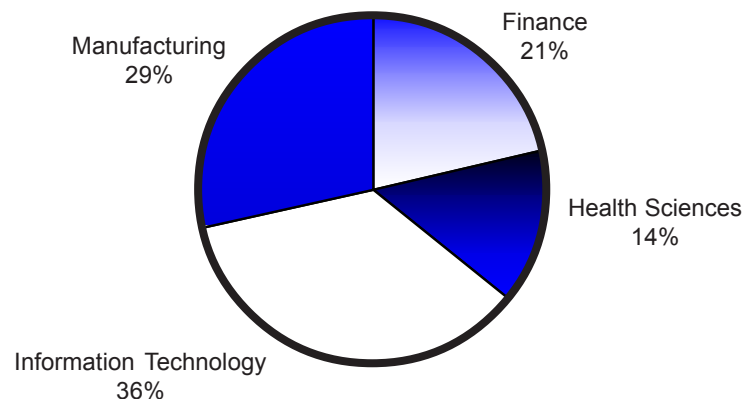
The research design for this study was qualitative, and the primary data collection method was telephone interviews. Interviewing was chosen because, as Seidman (1998) suggests, "At the root of in-depth interviewing is an interest in understanding the experience of other people and the meaning they make of that experience" (p. 3). Using telephone interviews allowed us to understand the experiences of business representatives as leaders of and participants in business-education partnerships and the priorities and values implicit in these experiences. It also allowed us to sample business partners from across the nation in the following occupational areas: health sciences, manufacturing, information technology, and finance.

In terms of the sample of businesses involved, a modified snowball sampling procedure (Patton, 2001) was used to identify a pool of potential businesses as recommended by members of national professional associations such as the National Tech Prep Network, the National Association of Tech Prep Leadership, the Association for Career and Technical Education, the National Association of Directors of Career and Technical Education, and the National Council of Workforce Education. Respondents were asked to recommend other businesses they believed would have information relevant to this study. Ultimately, all the businesses chosen for the study demonstrated a strong commitment to partnership activities. They allocated time and resources toward partnerships with education, with most receiving awards and recognition from national groups and professional organizations for their work with schools. Hence, our sample was not a typical group of businesses, but ones that had demonstrated a keen interest in education, evidenced by a strong track record of active participation with the education community.

Businesses Involved

Twenty-four companies agreed to participate in the study. A total of 30 interviews were conducted of which 28 generated useable data. We interviewed two employees each from Boeing, Manpower, State Farm, and IBM, and one person from each of the other 20 companies.

At the end of this report, we provide a complete list of the company names and contact information for those interviewed. Based on the 28 interviews conducted, 21% of companies were in the finance cluster; 14% were in the health sciences cluster; 36% were in the information technology cluster; and 29% were in the manufacturing cluster.

Finance
21%

Manufacturing
29%

Health Sciences
14%

Information Technology
36%

1,000,000+
8%

1,500-9,999
21%

100,001-999,999
29%

10,000-100,000
42%

The businesses involved in the sample were primarily large, major corporations. Although the size of the employee workforce varied among the companies, several of them operate globally with operations and divisions in multiple countries. No company had less than 1,500 employees, with 21% of the companies employing between 1,500 and 10,000 employees; 42% having between 10,000 and 100,000 employees; and, 37% employing over 100,000 people.

Though all companies tended to be large, the length of time they had been involved in business-education partnerships varied, with all companies having spent more than 5 years in partnership activities with education. The maximum length of participation was over 100 years, while the minimum was 6 years. About 41% of the companies sampled had business-education partnerships for 6-20 years; 48% had business-education partnerships for 21-99 years; and, 11% of the companies had business-education partnerships for over 100 years.
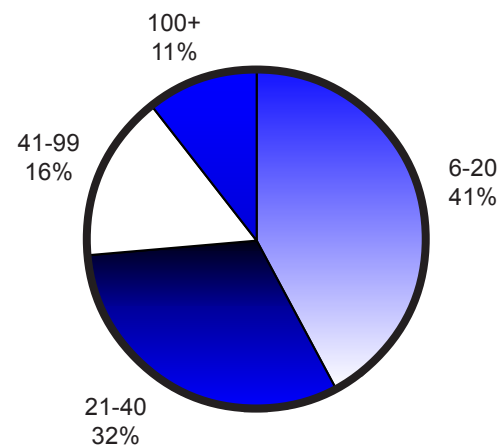
What We Learned

During interviews with business representatives, we asked them to prioritize their partnership activities according to the time and resources committed to working with students, teachers, and administrators in the educational setting, changing company practices to support business-education partnerships, and working at a local, state, or national level to support education.

Results are presented in the following categories:

- Working with Students

- Working with Teachers

- Working with Administrators

- Changing Company Practices

Working with Students

Business representatives indicated that working with students is the top priority of their partnerships. Individually, they indicated that the number of students impacted by their partnerships ranged from only a handful to tens of thousands. The type of activity in which businesses worked with students influenced how many students were involved in the partnership. For example, tutoring, mentoring, e-mentoring, and mock interviews typically require employees to work with students one-on-one whereas job shadowing involves more students, with one employee typically working with up to five students. Employees serving as guest speakers can reach anywhere from 100 to 1,000 students.

What priority does the company give to participating in student activities?

Activity	Mean
Mentoring (academic or career)	2.66
Assessment of student interests and abilities	2.27
Guest speakers	2.16
Workplace tours	1.92
Job shadowing	1.92
Internships	1.75
Career days/fairs	1.66
Speakers bureaus	1.50
Tutoring	1.25
Cooperative education	1.17
Job rotations	1.09
Youth apprenticeships	0.83
Apprenticeships (i.e., union apprenticeships)	0.83

Note: The mean is based on the following scale: 0 = not a focus, 1 = minor focus, 2 = moderate focus, and 3 = strong focus. Responses to scaled items on student activities were given by 12 respondents.

Why does business focus time and resources on working with students?

Business representatives were asked about how they chose which activities to focus on and why these were selected. The following responses are typical of those received.

At the student level, businesses seek to:

- plant a seed and influence students to pursue higher education.

- educate students about career opportunities.

- spark students' interest in occupational fields related to their industries.

At the business or industry level, businesses are motivated because working with students:

- is in line with the business's philosophy.

- produces future employees and knowledgeable customers, which strengthens the company in future years.

- helps grow a talent pipeline for the industry.

- demonstrates good corporate citizenship and supports education, positively influencing students' futures.

At the national or societal level, businesses believe that working with students:

- develops a more highly qualified workforce which, in turn, allows the country to remain globally competitive.

- promotes a highly qualified workforce that enhances society overall.

- produces educated individuals who are more involved in their communities and more active voters.

- yields a viable tax base, which facilitates the economic development of a community.

What does business hope that students gain from these experiences?

Those interviewed were asked about the impact on students that they hope for as a result of their participation in activities associated with business-education partnerships. Typical responses follow.

As a result of business-education partnerships, students will:

- learn how concepts studied in the classroom apply to the workplace.

- see a connection between the courses they take at school and their future career options.

- learn about occupations and have opportunities to explore career options.

- become more highly-qualified employees by learning real-world skills and gaining confidence in themselves.

- pursue higher education and gainful employment.

- raise their achievement levels or test scores.

- become increasingly involved in their communities.

How do business-education partnerships help students achieve these outcomes?

Business representatives believe their partnerships help students by:

- giving them opportunities for career exploration to assess interests in occupations and learn about career opportunities.

- facilitating student learning through hands-on activities, service learning projects, and various activities in workplace settings.

- providing a supportive environment including support from mentors, teachers, and peers as well as counseling and vocational education clinics.

- having business representatives serve as role models, exemplifying their pursuits of higher education and career goals.

> **"The more contact these kids can make with adults, the better. Adults model certain behaviors; students get exposure to career areas. They see people who have gone to college and what it takes to get there and why it's important."**
>
> *Mike Schmidt, Ford Motor Company*

Working with Teachers

Working with teachers is the second highest priority for business representatives. Frequently mentioned activities include curriculum development and assisting teachers to integrate industry and academic standards, practices, and technologies into the curriculum. As seen with students, businesses tend to be less involved in high resource, intensive activities involving teachers such as school-based enterprises, entrepreneurial projects and internships, and externships and sabbaticals.

What priority (degree of focus) does the company give to participating in teacher activities?

Activity	Mean
Curriculum development	2.75
Informing teachers about current industry skills standards and how to integrate these with academic standards	2.75
Advising teachers about current industry practices	2.50
Educating teachers on current technologies in the classroom and workplace	2.50
Mentoring teachers in student's project-based learning activities	2.50
Developing instructional materials	2.38
Acting as a consultant to school-based enterprises/entrepreneurial projects	1.88
Providing internships, externships, and sabbaticals for teachers at your workplace	1.75

Note: The mean is based on the following scale: 0 = not a focus, 1 = minor focus, 2 = moderate focus, and 3 = strong focus. Responses to scaled items on teacher activities were given by 8 respondents.

Why does your business focus time and resources on working with teachers?

Business respondents believe that working directly with teachers is important. Typical responses from those interviewed included:

- Working with teachers has the most potential to lead to systemic change of the education system. Many business representatives cite research that demonstrates how the quality of the teacher has the most impact on student learning. A single teacher has a direct impact on groups of students and fellow teachers, enabling business to indirectly influence dozens or sometimes hundreds of teachers.

"Teachers are the focus point if you think about how many students a teacher can impact."

Morgan Anderson, Intel

- Teachers are the gatekeepers to the classroom and the curriculum. Business needs teacher buy-in to influence the classroom and to support partnership activities.

- Business learns from teachers about the unique needs and challenges of educational systems, as well as the needs of students.

- Business is a resource for teachers, providing professional development, motivation, incentives, equipment, and support in times of school budget constraints.

What do businesses hope that teachers gain from these experiences?

Business hopes teachers:

- learn new methods and models of teaching, linking the classroom to industry and incorporating contextual learning activities into the curriculum.

- learn about business and industry, better understanding the skills students need to learn to be effective in the workplace.

- acquire a focus on life-long learning, increasing their participation in professional development activities and pursuing national teacher certification.

- feel appreciated in their work as teachers, becoming more motivated and excited about their jobs.

How does your partnership help teachers achieve these outcomes?

Business believes their partnerships help teachers by:

- assisting them to develop curriculum, learn new technologies for the classroom, learn how to incorporate student learning goals into the curriculum, and link classroom and workplace learning.

- providing professional development resources.

- providing hands-on activities in workshops and internships.

- establishing open communication with teachers, allowing business representatives and educators to compare needs and resources and work toward meeting each other's needs.

"[Working with educators is] like a 7th grade dance, with all the girls on one side and boys on the other…. It takes a lot of energy to bring them together."

Peter Joyce, Cisco

15

Working with Administrators

The majority of business representatives reported they worked less often with school administrators than other groups. By way of explanation, business representatives gave the following two reasons:

- Working with students and teachers is more important than working with administrators because teachers have the greatest impact on students, and many businesses want to directly impact students. If there are only one or a few business representatives working on partnerships, they may choose to devote their time and resources to the audiences where they believe they can have the greatest impact.

- Working with administrators does not take as much time as working with students and teachers. Often businesses work heavily with administrators when they are developing or revamping a program or addressing a problem. After this has been achieved, the business representatives may return to working with students and teachers.

Why does business work with administrators?

Business offers the following reasons for working with administrators:

- To support educational change.

- To share business strategies that can enhance productivity in the schools.

- To educate administrators on business' expectations for partnership activities and the resources companies can provide.

- To convey support for teachers, facilitate contextual learning activities in the classroom, and reinforce the importance of technical skills in the current climate focused on academic achievement.

"Always come and ask us. We may not always be able to say yes. But if you don't ask, you'll never know."

Karin Dicks, AMD

How does business work with administrators?

Business representatives responded to the question in two ways. They discussed their methods of working with school administrators and the actual work they accomplish in partnership meetings.

Business works with school administrators through:

- participation on various committees.

- memberships in local, regional, and national educational organizations.

- briefing meetings and one-on-one conversations.

Business and school administrators work together in order to:

- identify the needs and resources of business and schools.

- develop goals for the partnership including the utilization of business strategies to conduct planning.

- provide administrators with professional development activities such as internships and workshops.

What does business hope that administrators gain from partnership activities?

Businesses believe that administrators have much to gain from partnerships:

- Administrators should learn how to apply business practices to managing educational institutions.

- Administrators can benefit from learning more about the needs of the workplace.

- Administrators can gain greater respect and trust for business through open communication and a greater understanding of each others' needs and resources. The level of respect businesses have for educational administrators and their work is expected to grow too.

"Folks realize that we're a gorilla in the IT industry. We gain a reputation for our partnerships, and they understand our honest interest in partnerships…. We're not playing a political game…. We have 10,000 partnerships worldwide. We can't be too much of an enemy."

Peter Joyce, Cisco

Changing Company Practices

During the interviews, we asked business representatives to estimate a percentage of time and resources committed to partnership activities such as working with students, assisting teachers, and changing company practices. If a percentage was below 25%, we did not probe further, assuming that particular partnership activity was too minimal to provide detailed information. Consequently, few of our interviews delved into changes in company practices, with few business representatives identifying how their businesses had changed or how company practices to support partnerships had been strengthened. Even so, in an analysis of interview responses relative to other areas, we found some evidence of businesses engaging in practices that had the potential to impact internal organizational structures and processes. These practices include:

- using local educational organizations as a primary source for training the company's workforce.
- encouraging employees to become involved in the local educational system through volunteering time and participating on school boards.
- encouraging employees to become active in parent organizations and partnership boards.
- adopting internal policies that support parental involvement in their student's schools.
- forming alliances with other employers by joining industry and business associations that encourage business involvement to improve education.

In the Employer Partnership Model, practices reported to be of interest to businesses not evident in our data were:

- training employees to supervise students who are participating in workplace activities.
- using students' transcripts, portfolios, certificates, work experience, and work-based learning experiences in hiring decisions.
- conducting cost-benefit analyses on training of employees (relative to the cost of turnover).
- using skills standards for internal training, career development, and performance reviews of employees.
- assessing the performance of graduates of partnership programs who were hired, retained, and promoted within the company.

We speculate that the percentage of time and resources devoted to "Changing Company Practices" was low because business representatives may not distinguish these practices from other partnership activities. For instance, when business representatives described how they worked with students, they talked about their company's policy that gives employees time off each week to volunteer in their local schools. According to the Employer Partnership Model, this company policy would be categorized under "Changing Company Practices," but business representatives we spoke with categorized these practices under "Working with Students."

Partnerships in Action

Business representatives provided detailed descriptions of the partnerships they believed were models that other business and education organizations might learn from and replicate. In this section, "Partnerships in Action," we present vignettes to illustrate some of the richest and most informative partnerships that we learned about.

We present the vignettes based on categories consistent with the Employer Participation Model: working with students and working with teachers. Although business-education partnerships often involve multiple stakeholders and priorities (e.g., working with students and teachers), we categorize the vignettes based on the stakeholder the companies prioritize. Hence, the model partnerships included are classified where we found the preponderance of activity:

- Working with Students
  - TechKnow Education—Texas Instruments
  - Design Your Future—Autodesk
  - Plano Independent School District—EDS
  - TechReach—Manpower
  - Financial Fitness for Life—Bank of America
  - Semiconductor Executive Council and Destination: Digital—AMD

- Working with Teachers
  - Manufacturing Technology Advisory Group (MTAG)—Boeing
  - Reinventing Education—IBM
  - Intel® Teach to the Future—Intel
  - TWIST—3M
  - State Farm Learning and Teaching Exchange (SLATE)—State Farm

Partnerships Featuring Work with Students

TechKnow Education—Texas Instruments
Dallas, TX

TechKNOW-Ed at Texas Instruments teaches students about the semi-conductor industry and enhances math and science teachers' understanding of how real-world math and science can be applied in the curriculum.

In 1997, Texas Instruments (TI) and other corporations in the semiconductor industry became aware of the short-age of skilled workers for their highly technical industry. Working in collaboration with companies such as SEMATECH, Intel, National Semiconductor, Dallas Semiconductor, and ST Microelectronics, TI partnered with educational institutions to develop programs designed to build a future workforce in the Dallas- Ft. Worth area. The TI workforce development office dubbed its educational partnerships programs TechKNOW-Ed (Technical Knowledge through Educational Partnerships). In these partnerships, TI works with community colleges, technical schools, and sec-ondary schools to develop technical curriculum, outfit labs, fund scholarships, provide internships, assist with faculty professional development, and promote career awareness in the semiconductor industry.

Through TechKNOW-Ed, TI provides students with learning opportunities that take place inside and outside of the classroom. At the high school level, students learn about the semiconductor industry through classroom presenta-tions, industry tours, and summer chip camps. college students acquire knowledge from curricula developed with industry input. Some schools have developed labs to simulate the semiconductor manufacturing work environ-ment, enabling students to experience real-world workplace conditions. Additionally, a select group of students have the opportunity to participate in paid internships at TI. While in the internship, students are required to complete 24 credit hours per calendar year while working a modified two or three day work week. The pay scale consists of four different levels determined by the number of credit hours completed by the student. Each intern's academic and workplace performances are evaluated at the end of each semester. Students successfully main-taining the required performance standards remain in the internship program until graduation, gaining valuable work-related experience. Upon graduation, graduates can apply for a full-time position at TI. Thus far, the company has hired over 70 graduates through this program.

TI also works with a larger group of local semiconductor companies through the Dallas/Ft. Worth Semiconductor Executive Council (SEC) consortium. One goal of the D/FW SEC is to provide experiences for high school math and science teachers to understand how real-world math and science can be applied in classroom learning. The D/FW SEC provides two unique opportunities for teachers to learn about the industry during the summer months. One opportunity is an institute where secondary school teachers spend a week visiting related local college pro-grams and hearing from industry insiders to learn about the semiconductor manufacturing field. A second oppor-tunity is a more in-depth experience where teachers participate in a six-week externship program. The teachers rotate through various company sites and ultimately develop state-approved lesson plans that can be distributed to other teachers as classroom applications that fulfill the Texas Essential Knowledge and Skills requirement.

Design Your Future—Autodesk
San Rafael, CA

Design Your Future (DYF) began as a grassroots initiative started by female employees at Autodesk in 1997. CEO Carol Bartz recognized that women were not being attracted to the field of technology in significant numbers. As a result, Autodesk created the DYF initiative, partnering with schools, non-profit organizations, and the local Bay Area School-to-Career (STC) organization. DYF offers hands-on opportunities for girls in local public schools to advance their math, science, and technology skills. Additionally, the purpose of DYF is to raise girls' awareness of the technology field and to pique their interest in careers in technology.

Leveraging the resources of all of DYF's partners is an important component of the partnership. By partnering with schools and teachers, Autodesk has greater access to students. The STC organization acts as an intermediary to identify students and disseminate information to teachers about Autodesk's various learning opportunities. In return, Autodesk's employees focus their time on internal recruitment of employee volunteers.

The partnership includes a continuum of activities dependent on Autodesk's business climate and the emphases selected by female Autodesk employee volunteers. First, DYF sponsors career awareness activities and speaker's bureaus in which women employees visit schools and talk to both male and female students about the roles of women in technology. Also, Autodesk offers job shadowing opportunities for groups of girls, with female employees acting as role models. Mentoring has changed over the course of the partnership, shifting from face-to-face mentoring to email mentoring (i.e., e-mentoring). Now 45 women and 45 middle school girls communicate via email once a week. The women advise the girls on their goals for the future, making them aware of technology careers. Lastly, high school girls participate in internships at Autodesk where they develop, update, and maintain the DYF website. Autodesk brings in students with little or no skills in web design, but who have a desire to learn about technology. The website is the main vehicle for learning technical skills and providing supportive team-based activities, and it is a resource widely used by girls, women, parents, and teachers.

To share strategies for a successful partnership like DYF, Autodesk developed a tool kit available online, free of charge. The tool kit includes information about how to develop a program like DYF, permission slips, activities, and so forth. Interested companies can download the tool kit, attach their own logo to it, and replicate the program on their own.

Positive outcomes are evident from the DYF partnership. Thus far, Autodesk has directly reached 2,855 female students through the program, not including the students who visit the DYF website. The partnership is seen as a growing pipeline for female technology workers. A growing number of college graduates who once interned and participated in DYF during middle school are hired as full-time employees. Additionally, Autodesk has tracked participants' college majors and found the vast majority engaging in science or technology-related studies.

Autodesk's Design Your Future raises girls' awareness of the technology field and peaks their interest in careers in technology.

Plano Independent School District—EDS
Plano, TX

EDS employees provide tutoring and mentoring to students in local schools, including "virual mentoring."

EDS is an active partner with several schools within the Plano Independent School District. Since the partnership's inception in 1985, the program was extended to several schools located throughout the United States. The EDS-Plano Independent School District partnership targets K-12-aged students. Upon commencement of each new school year, EDS meets with local school administration to strategize and plan activities for the upcoming school year. During these meetings, EDS addresses the current state of industry on both micro and macro levels. In doing so, EDS and local school administrators negotiate the level of involvement EDS will commit to during the upcoming year. For example, EDS made the difficult decision in recent years to not provide as many volunteers during slow economic times.

Since the program's inception, EDS and the Plano School District have carried out seven partnerships and involved 300-400 employees. EDS employees provide mentoring and tutoring to students in the local schools. EDS has recently extended the mentoring program to include "virtual mentoring." The virtual mentoring program targets sophomore, junior, and senior high school students. Each employee is assigned a student and at the beginning of the school year, the employee and student meet face-to-face two times. The relationship continues throughout the year during which the employee helps the student learn job-related skills including resume writing, job searching, and interviewing. The mentoring relationship culminates when the student submits a complete resume documenting the new experiences and skills achieved. Employees donate time for mentoring during their lunch hour breaks. EDS attributes the impact of the program to its customized approach for each student.

EDS' commitment to education partnerships extends beyond the Texas borders. With one EDS employee dedicated to fulfilling the role of Global Program Officer, EDS provides its local sites with information on current needs of schools, researched programs, and the latest tools and procedures. With partnership information packaged in a how-to guide posted on an intranet portal, EDS sites quickly and effectively carry out partnerships with local communities. The how-to guide is comprehensive in that it provides employees with the nuts and bolts of partnership programming. It advises employees on how to start and manage a partnership, how to secure clearance, how to promote good communication between partners, or how to acquire resources. In addition, the intranet provides a feedback loop for EDS employees to communicate with the Global Program Officer at the EDS headquarters, regardless of location. With the support of the Global Program Officer, how-to guide, and intranet portal, other EDS partnership activities include drives (e.g., backpack drives, clothing drives, school supply drives, and food drives), fundraising, holiday parties, and Junior Achievement on the national and international levels. Additionally, some EDS sites provide assistance with distributing and revamping school information technology departments.

TechReach—Manpower
Milwaukee, WI

Manpower is a global company that is not only notable for its 2 million employees in 63 countries, but for its level of commitment to business-education partnerships. Because Manpower views partnerships with education as an investment rather than a cost, they have long been part of Manpower's culture and tradition. Partnering with education has always been present among all ranks of the company, from the top ranking executive officers to the front-line workers. Manpower's partnerships are national, regional, state, and local in scope. Best practices are often posted on the Manpower intranet wherein employees share information and learn from one another. As a result, Manpower sites across the country often replicate other sites' programs in their local communities.

Manpower's TechReach program is one such partnership. Through TechReach, Manpower strives to prepare economically disadvantaged students for well-paying career opportunities. TechReach serves a wide array of students: high schoolers, college-aged students, incumbent workers, and unemployed workers through partnerships with local companies, community-based organizations, educational institutions, government agencies, and business associations. TechReach's goals are to be: 1) a gateway to well paid employment opportunities for the unemployed or underemployed; 2) a new source of technical employees for Manpower clients; and 3) an effective workforce intermediary bridging the digital divide.

In one TechReach partnership, Manpower partnered with two Chicago non-profit agencies that support low income Latino/a and African-American students. Another partner was the local community college. Prior to the partnership all of the students either worked at minimum wage jobs or they did not work at all. Upon completion of the program, the students gained full-time employment at major companies earning higher wages. Through Manpower's networks with companies across Chicago, the students carried out internships at major companies, and they were mentored by both their workplace supervisors and Manpower staffing specialists. Throughout the program, Manpower offered classroom-based training and workshops to develop students' technical and job-related skills. Manpower verified their skills through industry-recognized certifications.

Through these partnerships, Manpower and the partners were able to share best practices, knowledge, and experiences. Moreover, partnering with community-based organizations gave Manpower access to new employees. The community-based organizations prescreened the students and provided case management during training and job-searching processes. The partnerships strike a true balance. The community college provides the facilities, instruction, and teaching expertise for the training, and Manpower provides labor market information, job profiles and competencies, job openings, curricula, and workshops. Manpower and its partners actively communicate and collaborate in all decisions.

Partnerships with education have long been part of Manpower's culture and tradition. Manpower's TechReach strives to prepare economically disadvantaged students with well-paying career opportunities.

Financial Fitness for Life—Bank of America
Charlotte, NC

Financial Fitness for Life of Bank of America offers curriculum, teacher training, and parent education to assist students to meet academic standards.

Bank of America partners with the National Council for Economic Education in a program called Financial Fitness for Life. The program provides a comprehensive personal finance curriculum to K-12 students to teach them how to become skilled consumers, savers, and investors. The program is unique in its three-pronged approach to education: 1) development of curriculum; 2) teacher training; and 3) parent training. The program goes beyond students' acquisition of economic concepts by incorporating cross-disciplinary educational standards in mathematics, English, language arts, economics, and personal finance. The process by which students learn to meet academic standards stimulates family involvement and life skills development based on economic concepts and personal financial planning.

Financial Fitness for Life began as a comprehensive personal finance curriculum but developed into a national education program. Financial Fitness for Life is implemented at the local level by state affiliates. To date, 18,000 teachers in 21 states and Washington, DC have trained in the first phase of the Financial Fitness for Life program.

The program also addresses a critical need for educational reform through efforts such as the recruitment and training of quality teachers. Additionally, the partnership provides professional development credentials and useful classroom materials for teachers. In many cases, workshops and learning materials and books are provided at no cost. The partnership emphasizes teacher training because of the belief that teachers are the key leaders in education at the local level.

Parent education is the third component in the Financial Fitness for Life partnership. Parents receive guides and workshops that promote activities in which families can become involved in their children's learning. Parents are informed about topics covered in the student workbook and are presented with a step-by-step approach to talking with their children about money management.

Semiconductor Executive Council and Destination: Digital—AMD
Austin, TX

Established in 1995, the Austin Area Semiconductor Executive Council (SEC) is a partnership among AMD and Austin, Texas area school districts, colleges, universities, and international semiconductor companies. The SEC began when AMD partnered with a local community college and two K-12 school districts to address a shortage of skilled workers in the semiconductor field.

AMD and the three educational entities developed a specialized associate's degree program titled SMT (Semiconductor Manufacturing Technology) to prepare Austin residents for jobs in the high-tech industry. Over time, the partnership evolved to include 10 major semiconductor companies in the local area including AMD, 6 school districts and 3 colleges/universities. The SEC developed the Destination: Digital brand for its programs and career awareness activities. The partnership's efforts were spearheaded by a leadership team comprised of key executives from school districts, community colleges, and major semiconductor companies in the Austin area. The SEC has three goals:

- to get students more interested in math and science at an early age through hands-on learning.

- to encourage students to go on to higher education.

- to work with adults who would like to move into a high tech career, but lack the skills to do so.

These three goals are implemented through the following Destination: Digital programs and activities:

- Industry-specific training (SEMI Workforce Development Institute).

- Work-based learning (internships, mentoring, on-site students experiences).

- Teacher development (Advanced Summer Institutes for Educators).

- Career awareness activities (Greater Austin@Work College & Career Fair, industry site visits).

The Semiconductor Executive Council and the Destination: Digital partnership involving 10 semiconductor companies including AMD, and Austin schools and colleges encourages high school students to study math and science and go to college, and adults to pursue high-tech careers.

Partnerships Featuring Work with Teachers

Manufacturing Technology Advisory Group (MTAG)—Boeing
Seattle, WA

In the Puget Sound and Seattle area, Boeing serves a leadership role in the Manufacturing Technology Advisory Group (MTAG) to connect business representatives and eduators.

In the Puget Sound, Seattle area, Boeing serves a leadership role in the Manufacturing Technology Advisory Group (MTAG). This group is an organization whose membership consists of 17 companies within Seattle and the Puget Sound area, 25 high schools, 11 community and technical colleges, the state board for community and technical colleges, the Office of the Superintendent of Public Instruction, and members of the Society of Manufacturing Engineers, Chapter 39.

MTAG facilitates business-education partnerships between member companies and schools using the organization's website as the primary means by which business representatives and educators connect. Each company has an event page that teachers may access. On this page, the company lists opportunities they offer to teachers and students within member schools. These include guest speakers, internships, job shadowing opportunities, workplace tours, and the names of business representatives available to serve on advisory committees. If educators are interested, they fill out a request form and email it directly to the company. In addition, teachers can request training modules, advisors, advisory materials, supplies, and scholarship applications from the website. An external evaluation found the retention of employees (i.e., former interns) is high as a result of MTAG partnerships. Employees who previously served as interns express a high level of job satisfaction and are better prepared, necessitating less upfront training than those who were not hired through the internship program.

Reinventing Education, IBM
Austin, TX

In 1994, IBM launched the Reinventing Education Program wherein IBM donates money, technology, research, and technical expertise to its partnership with education. IBM believes that by leveraging the expertise of both partners, IBM and educators, technology can revolutionize education and overcome barriers in the educational process. IBM considers the most valuable aspect of the partnership to be the donation of time of highly skilled IBM technology leaders and developers. The human resources that enable IBM to work closely with educators make this partnership especially powerful and innovative.

Participation in Reinventing Education is initiated by a request for proposals (RFP) process. IBM issues the RFP and educators respond by outlining a specific problem or barrier they are experiencing. In addition, educators suggest potential ways to address the problem or barrier through a partnership with IBM.

In 2002, IBM launched a $15 million grant program to support the training and education of pre-service and in-service K-12 teachers. Partnering with 27 schools in 9 states, IBM brought innovative technologies into these schools. IBM provided $1.5 million in resources, including money, technology, and IBM expertise, to each educational partner. At the start of the initiative, IBM found teachers taught with traditional methods. For example, technology was used to write school papers but not used in communications, student assessment, or group work. Through IBM's partnerships with schools, teachers became acclimated to the new technology and learned how to incorporate it into lesson plans; they learned to communicate with students, families, and fellow teachers; and they facilitated technology-assisted group projects and assignments. Moreover, teachers used the technology for distance learning. IBM's aim is to encourage teachers to become so comfortable using technology that they will demand technology in their classrooms. Hence, teachers would always be on the cutting edge of innovative technologies in the classroom.

One exemplary program in the Reinventing Education partnership takes place in Houston, Texas, wherein IBM staff and a group of first grade teachers developed new software called *Watch Me Read*. This software helps first-grade students improve their reading proficiency. Using voice recognition technology, the software enables students to practice reading. The students first hear a panda read and then they read the passages that appear on the computer screen. At the panda's urging, they correct their word pronunciation. *Watch Me Read* was piloted in one elementary school, and now the software is available in virtually every Houston elementary school. IBM and the educators involved in the partnership have seen significant improvement in student reading, word recognition, and comprehension levels compared to students not using the software.

Through Reinventing Education, IBM launched a $15 million grant program in 2002 to support the training and education of pre-service and in-service K-12 teachers.

Intel® Teach to the Future—Intel
Hillsboro, OR

Launched in 2000, Intel® Teach to the Future raises teachers' comfort levels with computers in the classroom.

With support from Microsoft, Intel launched Intel® Teach to the Future in 2000. In this partnership, Intel® helps teachers integrate technology into the classroom to improve student learning. Partnering with school districts, the initiative uses a train-the-trainer model in which master teachers are recruited to receive training. These trained teachers return to their districts and teach what they have learned to 20 fellow teachers. In so doing, Intel® Teach to the Future raises teachers' comfort levels with computers in the classroom, thus addressing the problem that only about 20% of teachers are comfortable teaching with computers, according to Intel research.

During training events, the curriculum is divided into 10 modules requiring approximately four hours per module. Teachers generally complete one module a week. Throughout the training, teachers create a complete set of themed lesson plans that guide students in using technology to research, organize information, and communicate with others. The Internet, web page design software, and productivity software are used to teach teachers how to use these resources in the classroom. In addition, teachers learn how to use these technologies to create student assessment tools aligned with local, state, and national standards. In fact, teachers are eligible to receive graduate credit through a partnership with universities in their region.

The Intel® Teach to the Future partnership has been widely used in the U.S. and in over 40 other countries including Germany, Brazil, Pakistan, and China. In the beginning of the partnership, Intel® set a goal of training 400,000 teachers. In fact, Intel® surpassed its goal with one million teachers trained, thus far. As a result, Intel recently extended its commitment to the partnership, expanding its focus to include partnerships with universities and pre-service teachers.

TWIST—3M
St. Paul, MN

Teachers Working in Science and Technology (TWIST) is 3M's flagship partnership with school districts and the Minnesota High Technology Foundation, established in 1973. Stipends are provided to high school math and science teachers who spend six weeks of their summer at 3M's headquarters in St. Paul, Minnesota. Participating teachers gain a better understanding of how science is used in industry and what career opportunities are available. Upon completion of the TWIST program, teachers can choose to do a paper and receive graduate credits from St. Mary's University.

Twenty-five to thirty teachers participate in TWIST each year. Teachers are paired with a 3M host and are integrated into the laboratory environment where they run experiments under the supervision of 3M scientists. Bi-weekly noon sessions expose teachers to related topics such as intellectual property, new product development, or staffing.

TWIST is not a typical summer job, but rather offers hands-on activities and challenging research projects where teachers gain professional development in a "real lab" environment. Participants are expected to bring their newly acquired knowledge and experiences back to their local school districts. Some teachers do this by bringing examples from industry into the classroom; others develop new curriculum units; still others develop training, technical units, safety manuals, and websites. The value of TWIST is the result of its unique connection between science teaching and what happens in everyday life.

TWIST is a long term investment in teachers and education. One unintended outcome of the TWIST program often expressed by participants is that the experience affirms for the teacher that he/she chose the right career in becoming a teacher. Teachers often express, "My passion is teaching. I don't belong in industry." TWIST has been replicated at other 3M sites including Valley, Nebraska, and Aberdeen, South Dakota.

State Farm Learning and Teaching Exchange (SLATE)—State Farm Bloomington, IL

State Farm Learning and Teaching Exchange (SLATE) encourages employees to serve as substitute teachers so that K-12 teachers can attend professional development activities.

In 2001, State Farm partnered with the Illinois Deputy Governor for Education and Workforce to sponsor a series of meetings for the Illinois Task Force on Teacher Quality. Representatives from community colleges, state universities, PTO, PTA, NEA, and AFT, along with school administrators and teachers, focused on issues such as professional development and teacher preparation. The focus was on key issues that had been identified in the national report, *Investing In Teaching* (National Alliance of Business, 2001). The task force indicated that quality teaching was impacted by the lack of consistent, high-quality professional development. At every meeting, the lack of qualified substitute teachers and the ability to pay them were identified as primary barriers to teachers' participation in professional development. The availability of substitutes had been exacerbated by existing substitutes becoming full-time hires to meet teacher shortage needs. As a response to the need for continuing professional development, State Farm created the State Farm Learning and Teaching Exchange (SLATE) program that encourages employees from the corporate office to volunteer as substitute teachers in place of a day of work at State Farm.

The partnership stipulates that State Farm employees serve as substitute teachers only when partnering teachers attend a professional development activity. In order for State Farm employees to become substitute teachers, State Farm hosts Regional Office of Education workshops and assists employees to obtain substitute teacher certification. Currently, the program boasts over 500 employees as certified substitutes in Illinois, with pilots of the program underway in other states. Schools benefit because schools have access to trained substitutes free of charge while their teachers attend professional development activities. The company benefits by having its employees gain a greater understanding of real classroom conditions by spending a day in the schools.

Conclusions and Implications

Using the Employer Partnership Model as a framework, we collected and analyzed data with the following categories in mind: Working with Students, Working with Teachers, Working with Administrators, and Changing Company Practices. Several important findings emerged from our 28 interviews. What follows are key findings and implications for each category of activities.

Working with Students

The majority of business representatives described working with students as their highest priority. We heard about businesses working in classrooms with students to provide lessons and serve as guest speakers. Many businesses indicated they engaged their employees in mentoring students, with an increasing emphasis on e-mentoring. Traditional face-to-face mentoring was also common with students, occurring about once a week. During mentoring sessions, students typically shared information about their career interests, their progress in school, and sometimes also their personal concerns.

Most of the businesses committed to long-term partnerships with education, though many of the identified activities required fairly low levels of engagement. In their typology on the level of engagement of business-education partnerships, Grobe, Curnan, and Melchior (1993) identified six levels. Our results suggest many activities in which businesses engaged with students are level five partnerships, associated with relatively limited involvement, wherein businesses go into classrooms to interact with students as role models and resource persons. These types of partnerships generally did not delve into the curricular or instructional fabric of the educational system or move beyond the student, teacher, or classroom level.

Even so, the businesses seemed highly committed to the work they were doing with students, considering it of paramount importance to building the future workforce, committed customers, and active citizens. Business representatives repeatedly expressed the hope that their work with schools would help to produce a more highly educated citizenry, a better economy, and stronger communities. A universal benefit, according to business, was that a more highly educated citizenry would constitute a more highly qualified workforce, allowing the United States to remain globally competitive and economically secure.

Looking to the future, businesses indicated continued support for working with students. When asked to anticipate the longevity of their commitment, many said they were committed to working with students indefinitely. Unless economic difficulties forced a change, businesses saw no reason to stop their work with students. Their genuine appreciation for students as future societal members and employees bodes well for continued partnerships focused on students.

Working with Teachers

We heard about businesses' commitment to continue their important work with teachers. In describing their partnerships with teachers, several businesses had changed their primary focus from working with students to working with teachers. The shift in focus was not intended to abandon students but to draw more attention to the vital work of teachers. Based on Grobe, Curnan, and Melchior's (1993) framework, partnerships with teachers are considered at level four, making them more substantive than partnerships with students. Business representatives described working with teachers to develop new curriculum, to conceive of new classroom materials, to identify current industry practices and technologies, to integrate industry skills standards with academic standards, and to design project-based learning activities. Business representatives said they engaged in these activities as a way to be a resource and provide support for enhanced classroom instruction.

One of the most striking reasons businesses gave for their work with teachers was their desire to have a more direct impact on student learning. Some business representatives bemoaned the use of outdated curricula involving traditional teacher-centered instructional strategies. Businesses that placed a high priority on working with teachers emphasized professional development as extremely important, and they wanted to gain greater access to teachers to help them bring the curriculum up to date. In doing so, businesses believed the quality of education would be enhanced and student learning outcomes would be improved.

Further, several businesses expressed the viewpoint that working with teachers may be a more expeditious way to influence systemic educational change than working with students. Businesses understood the influence that teachers have on students through their role in designing and delivering instruction. They understood that each teacher impacts many students permitting their influence to be multiplied. With an increasing national interest in teacher quality evident in the No Child Left Behind Act, we believe that businesses are likely to continue to increase the priority they place on working with teachers.

Working with Administrators

The Employer Partnership Model framework did not mention working with administrators, but we included this group because we were interested in hearing whether business partnerships took administrators into account. Our results show business partners are working with administrators, though this is not as high a priority as working with students and teachers. Businesses view this as important because administrators are the gatekeepers to working with students and teachers. Businesses recognized the need to secure administrator buy-in to obtain access to the schools to promote and support their priorities. Echoing their reasons for working with teachers, businesses believed their work with administrators was leading to systemic change. They also believed their knowledge of organizational management would help administrators to manage schools more efficiently.

After reviewing these results, we classified these types of business-education partnerships as level four, with a few businesses operating at level three (Grobe, Curnan & Melchior, 1993). In other words, most activities involving administrators were fairly complex and substantive. Level four activities mentioned by business representatives included professional development, and level three partnerships were focused on working with administrators in managing schools. When businesses engaged in work with administrators, they usually developed goals for the partnerships, outlining various management activities, and delineating partner roles and responsibilities. Often businesses indicated they were educating school administrators about the need for partnerships, assuring them that their intention was to improve education and not to criticize or intervene in decisions that should rightfully be made by educators.

We anticipate that businesses will continue to work with administrators partially as a way to gain access to teachers and students. With administrator support, businesses can more easily reach this ultimate goal.

Changing Company Practices

Change in internal company practices seemed to take a back seat to working with students and teachers. With a myriad of goals and a host of different groups involved within many companies, businesses may have found it difficult to systematically integrate ideas and change their own company operations, or they may have felt changes were not needed. Unfortunately from our perspective, businesses missed opportunities to change their own policies and practices pertaining to human resource endeavors.

Promising Developments

Over the course of this study, the character and complexity of business-education partnerships became apparent. Businesses participating in our study had supported partnerships for a range of years, with some reaching large numbers of students and teachers. Many companies had partnerships in different divisions, different locales, and some in different countries. Business representatives talked of multifaceted corporate approaches that sometimes became disjointed and were occasionally unknown to other parts of the company. Recognizing this concern, some businesses were building linkages among their different partnerships to enhance coherency. Many were focusing on particular educational issues such as academic achievement or technical skill preparation and certain target populations such as female, minority, or first-generation college students for whom they saw an acute need for improvement or for which they believed they had sufficient resources to make a difference. Many believed that, through collaboration, their company's efforts would contribute to systemic change in the nation's educational system.

We saw another promising development in that, in several instances, businesses in a given industry were joining together to form councils or associations to improve education. Examples of these organizations include the Semiconductor Executive Councils of Austin and Dallas-Ft. Worth, TX, and the Manufacturing Technology Advisory Group (MTAG) sponsored by Boeing. These collaborative groups serve as advisory councils to assist educational partners to develop and revise curriculum, advise administrators and teachers about academic and technical skills needed by students, and provide work-based learning such as internships for students and teachers.

Finally, a few businesses joined national organizations to encourage other businesses to get involved in improving educational systems. For example, several companies are members of Achieve, an organization that works on state educational policy issues. Businesses that join organizations such as these agree on goals and strategies for improving education, and they work to persuade policymakers, educational administrators, and teachers to make needed changes. Grobe, Curnan & Melchior (1993) categorize these types of partnerships as level one or level two, the most broadly effective and complex partnerships. Through these types of partnerships, businesses combine to speak with one voice about their preferences for improving the nation's educational systems.

Future Research

Additional research is needed on partnerships between business and education. Our review of the literature suggests little is known about the focus, shape and character of existing partnerships, and even less is known about what impact they are having on educational systems. Since this latter issue is articulated as a priority so frequently by business, it seems important to more carefully evaluate the effects of these activities on all levels but particularly on student learning outcomes.

To lay the groundwork for future studies, we intend to continue to analyze our data, examining business priorities by career cluster, by length of time partnerships have existed, and by number of students and teachers involved. We hypothesize that we will find companies in the information technology (IT) and manufacturing clusters giving greater priority to technical skills preparation than the health and finance clusters where students are encouraged to explore careers and gain general academic skills. We also suspect that there are differences in partnerships that have existed for a long time and that serve larger numbers of students and teachers, with older and larger partnerships engaging in a wider range of highly complex initiatives.

In conclusion, we hope that our work has surfaced new research questions that stimulate additional inquiries into business-education partnerships, contributing to a greater understanding of how businesses interact with America's educational institutions.

References

Cappelli, P., Shapiro, D., & Shumanis, N. (1998). *Employer participation in school-to-work programs*. Stanford, CA: National Center for Postsecondary Improvement.

Carnevale, A. P., & Desrochers, D. M. (2002). *The missing middle: Aligning education and the knowledge economy*. Washington, DC: Office of Vocational and Adult Education (ED). (ERIC Document Reproduction Service No. ED465092)

Grobe, T., Curnan, S. P., & Melchior, A. (1993). *Synthesis of existing knowledge and practice in the field of educational partnerships* (Report No. PIP-93-1102). Washington, DC: Office of Vocational and Adult Education (ED). (ERIC Document Reproduction Service No. ED362994)

Hopkins, B. J., & Wendel, F. C. (1997). *Creating school-community-business partnerships*. Bloomington, IN: Phi Delta Kappa Educational Foundation.

Kaufman, B. (1998). *What business organizations say about school-to-work: An analysis and compendium of organizational materials*. Washington, DC: Institute for Educational Leadership.

Lankard, B. A. (1995). *Business/education partnerships* (Report No. EDO-CE-95-156). Washington, DC: Office of Educational Research and Improvement (ED). (ERIC Document Reproduction Service No. ED383856)

Lynch, R. L. (2000). High school career and technical education for the first decade of the 21st century. *Journal of Vocational Educational Research, 25*(2), 155-198.

National Alliance of Business. (2001). *Investing in Teaching*. Washington, DC: Author. (ERIC Document Reproduction Service No. ED452169)

National Center for Education Statistics. (1989). *Digest of education statistics 1989.* Washington, DC: U.S. Government Printing Office.

National Center for Postsecondary Improvement (NCPI). (1997). *Bringing school-to-work to scale: What employers report. First findings from the new administration of the National Employer Survey.* Stanford, CA: NCPI, Stanford University.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: Author.

National Employer Leadership Council. (1996). *The employer participation model*. Washington D.C.: Author.

National Employer Leadership Council. (2001, March/April). Employer involvement in school-to-work is widespread and expanding. *Employer Focus, 2*(1), 3.

No Child Left Behind Act of 2001, Pub, L. No. 107-110, 115.

Patton, M. Q. (2001). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Rigden, D. W. (1994). *Sustaining change in schools: A role for business*. New York: Council for Aid to Education.

Secretary's Commission on Achieving Necessary Skills. (1991). *What work requires of schools: The report of the secretary's commission on achieving necessary skills*. Washington, DC: U.S. Department of Labor.

Seidman, I. (1998). *Interviewing as qualitative research: A guide for researchers in education and social sciences* (2nd ed.). New York: Teachers College Press.

Solomon, C. M. (1991). New partners in business. *Personnel Journal, 70*(4)*,* 56-67.

Slaughter, S., & Leslie, L. L. (1997). *Academic capitalism: Politics, policies, and the entrepreneurial university*. Baltimore: Johns Hopkins University Press.

Taylor, S., Johnson, A. B., & Charner, I. (1998). *We need to be in it for all nine innings: Lessons from employer participation in school-to-career in Colorado*. Washington, DC: Academy for Educational Development-National Institute for Work and Learning.

Company Names and Contact Information

Finance Cluster

Allstate Insurance Company
Mike Siemienas
External Communication Consultant
Buffalo Grove, IL
(847) 667-8659
msie2@allstate.com
www.allstate.com

**Bank of America Foundation - Financial Fitness
for Life**
Paula Fraher
Director, National Initiatives
Charlotte, NC
www.bankofamerica.com/foundation/
index.cfm?template=fd_financial

Manpower - Junior Achievement
Pamila Brown
Director, Global Learning Center
www.us.manpower.com

MetLife Foundation
Danielle Kolker
Education Program Manager
New York, NY
(212) 578-2419
dkolker@metlife.com
www.metlife.org

**State Farm Insurance Corporate Headquarters -
SLATE and Service Learning Programs**
Carl Nelson
Education Excellence Staff Assistant
Bloomington, IL
(309) 763-5918
Carl.Nelson.AP89@StateFarm.com
www.statefarm.com/edexcell/exchange.htm

**State Farm Insurance Company - Pen Pals, Book
Buddies, Mentor Program and the Reception
Banquet**
Wanda Rogers
Underwriting Service
Austin, TX
(512) 918-5601
wanda.rogers.as2z@statefarm.com
www.statefarm.com

Health Sciences Cluster

Blue Cross/Blue Shield of Illinois - Gallery 37
Amy Parry
CareVan Program Administrator
Chicago, IL
parrya@bcbsil.com
www.afterschoolmatters.org/static/gallery37.html

**Cincinnati Children's Hospital Medical Center -
High School Transition Program**
J. Erin Riehle
Director of Disability Services
Cincinnati, Ohio
(513) 636-8729
Erin.Riehle@cchmc.org
www.cincinnatichildrens.org/ps

Johnson & Johnson - Bridges to Employment
Michael Bzdak
Director, Corporate Contributions
New Brunswick, NJ
Mbzdak@corus.jnj.com
www.jnj.com/community/contributions/programs/
Johnson_Johnson_Bridge_to_Employment.htm

Kimberly-Clark Corporation - Partnership with Marquette University
Carolyn Mentesana
Vice President - Kimberly-Clark Foundation
Dallas, TX
(972) 281-1477
cmentesa@kcc.com
www.kimberly-clark.com

Information Technology Cluster

AMD - Destination Digital
Karin Dicks
Community Affairs Specialist
Austin, TX
karin.dicks@amd.com
www.destinationdigital.org/homepage.html

Autodesk, Inc. - Design Your Future
Alice Smiler Ostrovsky
Manager, HR - Workforce Development
San Rafael, CA
(415) 507-6076
alice.ostrovsky@autodesk.com
www.autodesk.com/dyf/dyfmain2.html

Cisco Systems, Inc. - Cisco Networking Academy
Peter J. Joyce
Workforce Development Manager
San Jose, CA
(703) 484-5791
pjoyce@cisco.com
cisco.com

Electronic Data Systems - Plano School District
Charlene Edwards
Global Community Affairs Program Manager
Plano, TX
(972) 605-6557
www.eds.com/about_eds/
about_eds_community.shtml

The Gallup Organization - Millard North High School PAYBAC
Susan Shald
Recruiter
Omaha, NE
susan_shald@gallup.com
www.gallup.com

IBM - Reinventing Education III
Sandy Dochen
Texas Public Affairs Manager, Corporate Community Relations
Austin, TX
www.ibm.com/ibm/ibmgives

IBM - Reinventing Education III in Chicago
Diane E. Doers
Corporate Community Relations Manager
Chicago, IL
www.ibm.com/ibm/ibmgives

Intel - Teach to the Future
Morgan Anderson
Oregon Education Relations Manager
Hillsboro, OR
(503) 264-1868
Morgan.Anderson@intel.com
www.intel.com/education/unitplans/index.htm

Manpower, Inc. - Public Workforce System (for national level) & TechReach (for local level)
Branka Minic
Director, Workforce Development
Milwaukee, WI
(305) 670-1875
Branka.Minic@na.manpower.com
www.mytechreach.com

Texas Instruments - Techknow Ed (Technical Knowledge through Partnerships in Education)
Ezra Penermon
Manager, Workforce Development Programs
Dallas, TX
(214) 480-2528
ezra@ti.com
www.ti.com

Manufacturing Cluster

3M - TWIST
Barbara Kaufmann
Manager, Education Contributions Community Affairs
St. Paul, MN
(651) 733-1241
bkaufmann@3M.com
www.3m.com/about3M/community/ edu_twist_121097.jhtml

The Boeing Company - A World in Motion
John DeRosia
"A World In Motion" - Boeing Commercial Airplane Focal
Seattle, WA
(425) 266-6128
john.derosia@boeing.com
www.sae.org/foundation/awim/

The Boeing Company - Manufacturing Technology Advisory Group
Lynn G. Brown
MTAG Chairperson
Seattle, WA
(206) 852-8024
lynn.g.brown@boeing.com
www.mtag-wa.org

DaimlerChrysler Corporation - World of Work
Nellie B. LaGarde
Manager, Education Programs
Civic & Community Relations"
(248) 512-2934
www.daimlerchrysler.com

Ford Motor Company Fund - Henry Ford Academy
Mike Schmidt
Contributions Director, Education
www.ford.com

General Motors North America - A World in Motion
Diane J. Cenowa
"A World in Motion" Program Manager
www.gm.com

Goodyear Tire & Rubber Co. - The Industrial Maintenance Technician Program
Melody Thomas
Business Center Facilitator
www.goodyear.com

JLG Industries, Inc.
E. Loy Garber
Director, Human Resource Services
McConnellsburg, PA
(717) 485-6597
elgarber@jlg.com
www.jlg.com